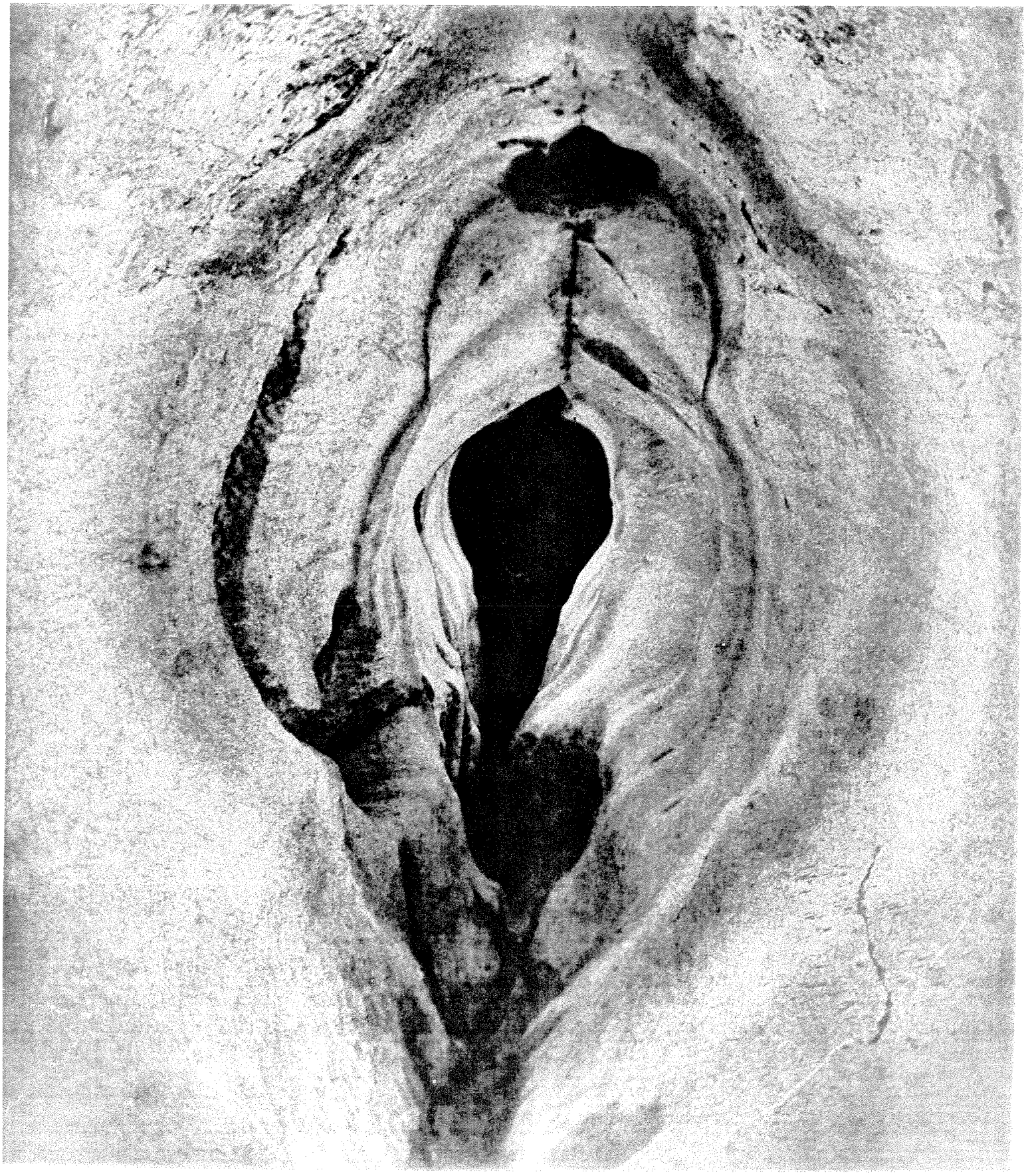
SOUTH WALES CAVING CLUB NEWSLETTER



SOUTH WALES CAVING CLUB NEWSLETTER

NUMBER 64 SEPTEMBER 1969

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Newsletter free to members - 4/- for outside subscription.

Cover photo - Town Drain (T. Charles Bryant)

Gower Hydrology final part not yet available.

FROM THE LOGBOOK

The inlet just beyond the boulders in the entrance to OFD III was maypoled first by John Osborne and Colin Fairbairn. 30 feet landed in a narrow rift which has been examined further by Robert Radcliffe, Martin Farr and Gary Jones who have found it too tight to proceed.

Meanwhile, some of the older members discovered a hundred feet of new passage near the crevasse in OFD III, ending in a blind pot twenty feet deep.

The survey is nearly finished (see elsewhere in the Newsletter) but unfortunately it has not revealed any obvious new passages lately.

Chemical and mechanical digging has been continuing in the boulder choke at the end of Grome passage. The latest attempt is by Jem and Terry Rowlands, despite the sceptics who maintain it just leads to the surface. Clive has recently been employing his chemicals at Sabre Junction in Pant Mawr Pot. Along with Clare Harvey and Bill Clarke, he has regularly returned each weekend to find that the calcite choke will not be persuaded.

On the Dan-yr-Ogof side of the valley, dye testing in Hanger Passage extension proved the stream in the southern branch is the same as in the northern. Both chokes at the ends of these passages look unpromising.

Several digs have been started above the Dan-yr-Ogof area. One is believed to be near some avens off Cloud Chamber, and another takes a small stream off the peat bog NNW of Waun Fignen Felen.

Dye tests in Sink-y-Giedd to discover where the main river enters Dan-yr-Ogof, and Pwll Dwyn were both unsuccessful.

On the 12th of July, Gary Jones cut his hand near the Washing Machine, requiring 18 stitches.

An attempt to dig into a 'divided' passage near Patti Cottages via an old rubbish filled shakehole stopped at a depth of 10 feet on a clay fill at the beginning of July.

Bill Little, Noel Christopher and Robert Radcliffe have periodically been visiting Ogof Dan Gi in the Mellte valley. The Dig is at the top of the limestone, excavating the fill out of a cave that is known to exist. So far it is 12 feet horizontally, and 4 feet down, with a draught.

SECRETARIAL NOTE

THE BEST THINGS IN LIFE ARE FREE

Amongst the objects and aims of the club are the four basic points that the club exists to promote the discovery, exploration, survey and scientific study of caves. In fact, it is these common interests that have brought us together in the first place. Everyone knows the enjoyment in exploring caves, but many of us have still to experience or wish to re-experience the special pleasure of finding 'our own' extension, or of making our own discovery.

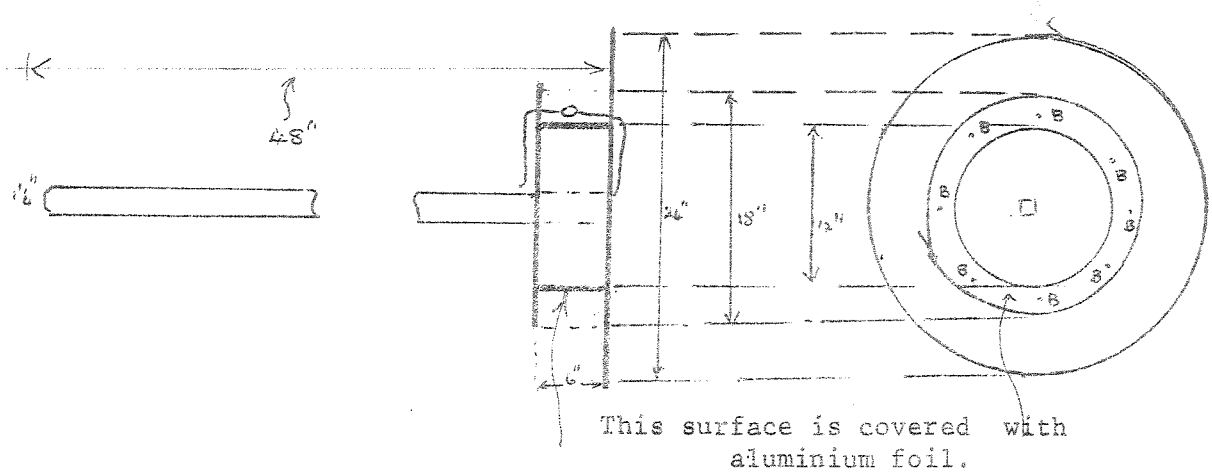
However, these pleasures have to be worked for, and you may find that a study of cave surveys, or a chance walk, leads you to believe that you have found the ideal site to work on. You should find at this time that the club can assist in many ways to ease your lot, and indeed the committee are pleased to contribute to your enthusiasm, by providing some facilities you may have forgotten exist.

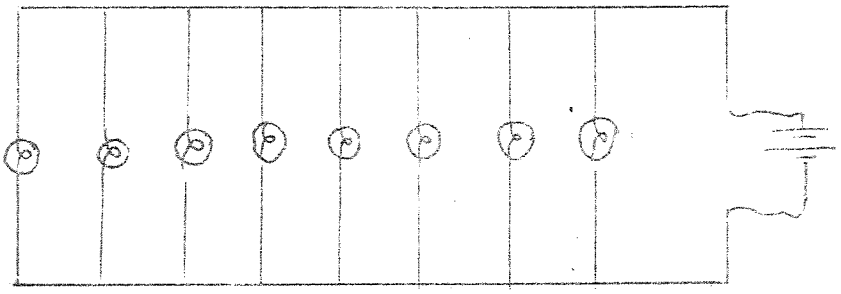
Digs are a popular method of pushing caves, and we hold a stock of wood at the club for this purpose. If it is not enough, or not suitable, let us know and we will correct the situation. All the tools necessary for digs are available, and both wood and tools are free.

In addition, we expect to contribute to special projects that you may have, although some warning is needed if special equipment is called for. Although by no means removing all of the cost, we can, for example provide fluorescein or chemicals for analytical work. Buried in the club records are reports on a large range of digs and explorations, and these records can assist you to trace references to sites that you may be interested in. The records are housed at Ty Mawr next door to the Penwyllt Post Office.

In short, if you have a project, let the club assist you, because if we can then we will.

HON. SECRETARY,
SEPTEMBER 1969.





B = 3.5v. 0.3A Torch Bulbs Soldered to wires in position shown.

PASSAGE ILLUMINATOR

TOWN DRAIN

(A note about the photograph on the Cover)

Since the advent of flash bulbs, their use has become almost universal in cave photography and the younger generation of cave photographers may be interested in the method adopted to provide more or less even illumination of the cave passage which is the subject of this picture.

A similar device was used by Peter Harvey, many years ago, to photograph a tight crawl in Goatchurch Cavern on Mendip and it was decided to make a larger version to provide illumination for a bigger passage.

Essentially the device consists of an open drum on the end of a pole. Inside the drum are a number of torch bulbs. The pole is held by a caver who advances slowly down the passage towards the camera so that the walls of the passage are illuminated but no light falls on the caver and no light shines directly towards the camera. It is desirable, however, that the person holding the pole should wear dark clothing and a white helmet should not be used.

The accompanying diagram gives the dimensions of the device used in Town Drain. For another passage it might be desirable (or even essential) to use quite different measurements. The drum was made of thin cardboard painted black and the inside was lined with aluminium foil. The drum was fixed to the pole by means of drawing pins (so that it could be assembled in the cave). The eight torch bulbs were soldered to stiff copper wire which passed through the flanges of the drum (insulating tape being stuck over the holes to prevent light from escaping) and connected to flex which ran along the pole to a Nife battery on the caver's waist.

Town Drain was selected for the experiment because it is not a popular cave so that there was little chance of disturbance while the exposure was being made and, in addition, there was a suitable passage within a few yards of the entrance.

To determine the exposure required, tests were made at night on the dark stone wall of a garage. The device was placed in position and a series of test exposures made from which it was calculated that 1½ minutes at f.16 on Royal X film (rated at 1200A.S.A.) would be correct. In taking the final picture, the device was moved forward for half of the distance actually illuminated, every ¾ minute. It was also moved gently up and down to provide more even illumination of the passage. Another caver used a darkroom clock (with a large second hand) and he transferred one to his right hand every 15 seconds. When all were in his right hand, he shouted and also transferred all the coins back to his left hand. The total time of the exposure was 40 minutes 30 seconds.

T. CHARLES BRYANT
August, 1969).

OGOF PEN CYFRWY, PEMBROKESHIRE

The entrance to this new cave was discovered by John Parker and Peter Wilkins (Cwmbran Caving Club and Cave Diving Group) on 5th April 1969 when climbing out on to the point of Saddle Head, Pembrokeshire (SR/9586.9287) to obtain a better view of the coastal cliffs. Next day Parker, lifelined by Wilkins and myself, descended to the cave by a rope climb of 60 ft. from a ledge inside the radar station enclosure. He reported a short system facing south. From its position and size I considered that it had archaeological potential (and the Neolithic site Ogof Gofan is only 100 yds away) and I invited Mr. R.A. Kennedy, Curator of the Pembroke County Museum to view it as soon as possible.

The next visit took place on 25th May and Kennedy, Parker and I descended to the cave. The entrance is some 15 ft. wide by 10 ft. high, leading from a wide ledge only 30 ft. or so above high water mark. A wide passage went back for 50 ft. with a great pothole to sea level on the right. Two clay-filled crawls then run from the rear of the cave, and there is another opening some 10 ft. down the pothole which appears to be choked with stalagmite flow.

Just inside the entrance of the cave is a large block which is a remnant of a stalagmite floor over 2 ft. thick, now neatly sectioned by marine erosion to reveal at least 2 periods of growth, both now terminated. The uppermost layer of stalagmite 'flows' down the pothole showing that the pothole is not a recent example of coastal erosion.

At a height of between 4 and 5 ft. above the floor of the cave and attached to the cave wall are the remains of an old stalagmite floor which may, or may not, be the same as the one represented by the block. Only fragments now remain but it can be seen to contain brecciated limestone. A piece of this was broken off with a hammer and was found to contain part of a jawbone which has been tentatively identified as hyaena by Mr. J.A. Bateman of the National Museum of Wales.

The cave has been examined by Mr. J.B. Campbell (at present attached to the Pitt-Rivers Museum, Oxford) and he concludes that pre-Würm deposits have been washed out of the cave by the sea, and the stalagmite growths remaining may be related to the 2 Würm Interstadials.

The cave is now being used as a nesting site by guillemots. Access is only by permission of the Army authorities who refer applicants to Mr. Kennedy.

MELVYN DAVIES, CWMBRAN
24th June, 1969.

CAVE LOSSES DUE TO QUARRYING

One cave has recently been lost due to quarrying in South Wales, and another is seriously threatened.

Ogof Fawr Trefil was situated in the large quarry, supplying the Ebbw Vale steelworks, north of Trefil village. It was still open on 1st January 1967 when I explored it with members of the ICI Speleology Section, but the snout of a gravel pile derived from the quarry stone-washing plant was fast approaching the entrance about 30 ft. above the quarry floor. On 5th January this year the entrance had become completely covered with gravel and the roof of the cave is several feet below the level of the gravel surface.

Excavation to open the cave will be almost impossible, and we are left with the brief description that appears in "Caves in Wales and the Marches".

The second cave, which is as good as lost, is the important archaeological site Ogof Coygan. Blasting has been taking place within 10 yards of the cave, and 2 holes have appeared in the north wall which open out on to the quarry face. Cracks have appeared in walls and floors well away from the quarry face, and large blocks have slipped out of the roof. During a visit on 26th July I climbed into a roof passage which had never been entered before, only to find stalagmite columns up to 2 feet long shattered by the blasting. Concern has been expressed by non-caving bodies, and I was accompanied on my recent visit by Mr. J.A. Bateman, Keeper of Zoology at the National Museum of Wales, and Mr. R.A. Kennedy, Curator of the Pembroke County Museum.

Archaeological digging has been carried out in this cave since at least 1866, and valuable finds were made in the last few years by parties from Cambridge University. It is known that the cave contained remains of mammoth, woolly rhinoceros, reindeer, cave lion, hyaena etc., but the entrance chamber can no longer be dug. It may be possible to excavate in the southern passage, but as far as could be seen on 26th July this is almost sterile. Even without further quarrying the roof of the entrance chamber - the most interesting part of the cave - will deteriorate due to frost action promoted by the cold air which, in winter, will circulate between the old entrance and the two new ones.

It is a pity that the caving world, which was able to prevent quarry-induced damage at Ogof Ffynnon Ddu and Llethrhyd Cave, now seems to be unable to save the famous archaeological site Ogof Coygan.

MELVYN DAVIES
29th July, 1969.

HOW TO USE THE INDUCTION 'RADIO' DEVICES

The cave radio device available to members at the Club will work through rock up to 600 ft. and enable surveys to be checked and passages located. It is essentially easy to operate and should measure to within 3% on location and 10% on depth.

Apparatus

The transmitter must be connected to the aerial before the battery is connected. Once connected, pulses of current at 2.1kc create a magnetic field rising from the coil. If the apparatus is working, a small neon light on the aerial will flash about three times per second. The power source is three or four nife cells connected in series making a convenient load. The polarity must be correct i.e. red wire to positive. The load is about 1.5 amp.

The receiver uses a similar coil fitted with a protractor, a small amplifier and earphones. The battery is inside. If the apparatus is working a faint continuous hiss will be heard; this increases if the coil is stroked.

When the signal is heard it will be as a pulsed whistling. Practice on the apparatus before your first test.

In use it is vital that the transmitter is horizontal and spirit levels are built in for this purpose.

Tests

With the transmitter set up and switched on at an arranged time:-

(1) Search for the signal, quartering the expected area, by holding the coil horizontal. A slow walking pace is sufficient. When the signal is received suspend the coil from one point so that it hangs vertical. Turn it until a NULL is heard and note the direction pointed. The transmitter lies somewhere along this direction. Walk a little off at right angles and repeat and the two directions will intersect at one point directly over the transmitter. Two people are best for this stage. Repeat until the axis is located precisely.

(2) Now hold the coil with both hands and face the axis. Turn the coil in the horizontal plane and note the angle to the vertical when a NULL is received. (90°- the angle for maximum if heard easier). The plumb-bob and protractor are used for this. Move towards the axis and repeat. If the angle for NULL increases then the distance to the axis is too great for the simple formulae. Move nearer and check again.

Now measure the angle for the NULL accurately (average a few readings) and measure the horizontal distance from the axis previously found and apply the formulae or curve to get the depth. If the ground rises or falls the formulae will give the depth from the receiving coil to the

transmitter. i.e. if receiver lower than axis add the difference in height to the depth. Do not forget the height of the coil above the ground!

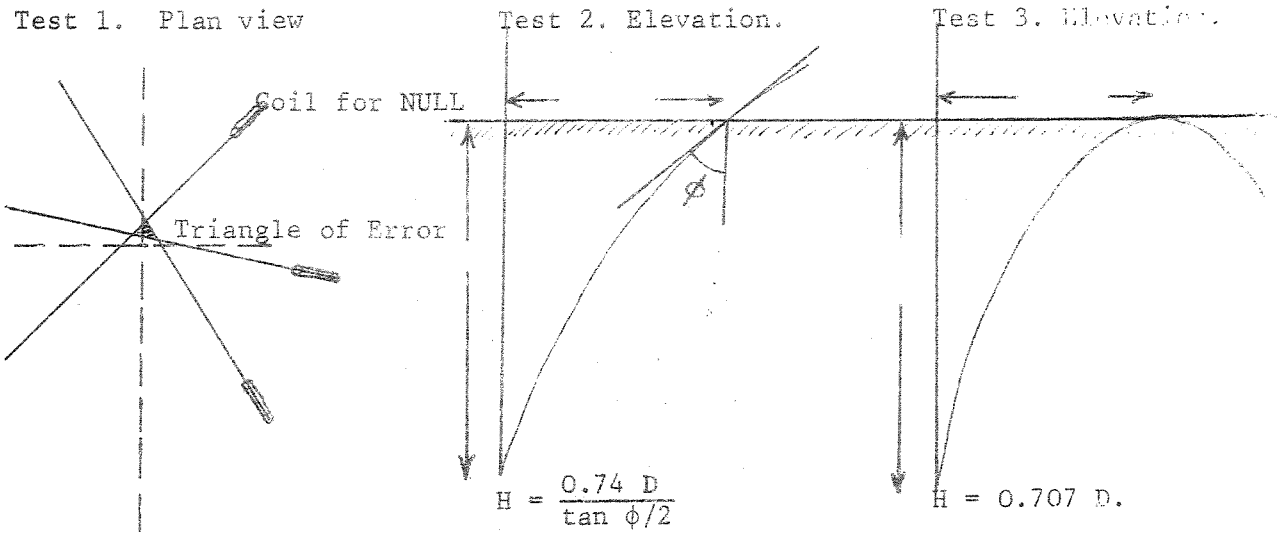
(3) If the signal is strong an easy test is to fix the axis then hold the coil horizontal and move away. When a null is reached the distance to the axis (D) = Depth x $\sqrt{2}$, where D is measured horizontally. Correct for rise or fall as before.

These then are the tests and the curve will give the depth of the transmitter below the axis. Although the formulae is complicated for angles between 30 and 60 degrees, a simplified formulae will give the depth.

$$H \text{ (depth)} = \frac{0.74\ D}{\text{Tan } \phi/2}$$

where ϕ is the angle for a NULL

SKETCHES Fig.1



Theory and detailed formulae

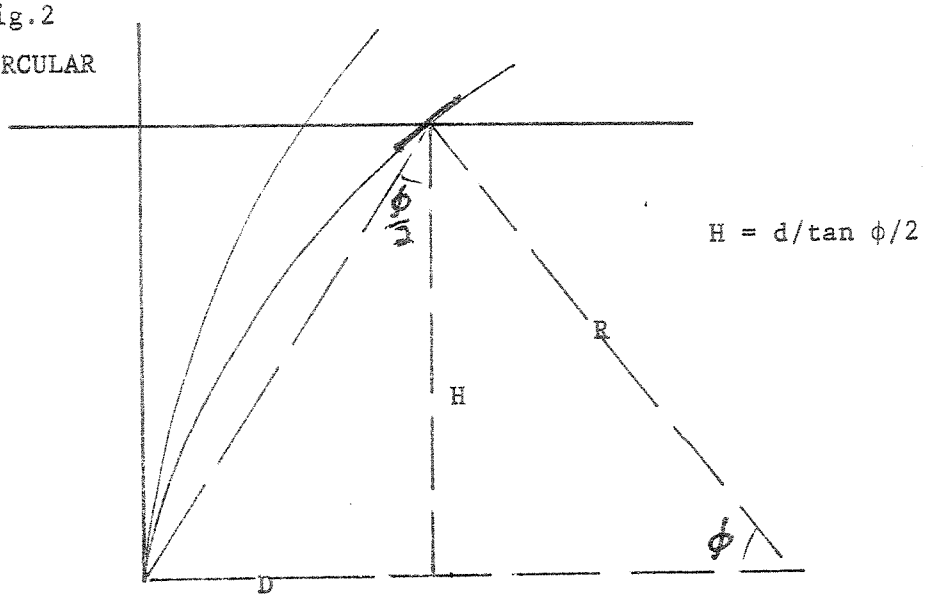
The transmitting coil sets up a magnetic field which is largely unaffected by the medium normally met with in the field. (i.e. perm rock 1.0). The device can therefore be calibrated above the ground (W.Birchenough 1962).

However if the transmitting coil is of small diameter compared with the depth measured the problem reduces to that of a magnetic dipole at depth. The flux will radiate symmetrically from the coil such that in cross section the field would appear as in the sketch. Where the field emerges on the surface it will cut the receiving coil and a signal is heard.

If the coil is then turned in the plane of the field when it lies on the tangent to the field AT THAT point a null will be heard since the coil encloses no net flux. The angle of the coil and the distance to the axis are then enough to calculate the depth.

Fig.2

IF FIELD WAS CIRCULAR



It can be seen that the field approximates to that of a circle and, with a correction factor this assumption gives fair results between angles of 30 and 60 degrees. See fig.3.

In practice Gauss Law states that at any point from a magnetic moment the flux has two components, one radial and one normal to this of values $\frac{2M\cos\alpha}{y^2}$ and $\frac{M\sin\alpha}{y^3}$ where M is the magnetic moment and y is the distance to the source. This fact shows why the signal falls off so rapidly since the signal is proportional to the reciprocal of the distance cubed.

If the receiving coil is at a position when it is horizontal and receives a null only vertical components of the flux can generate a signal. It follows that for this special case the two vertical components due to the flux must cancel out (i.e. for test 3), then referring to fig.3 it follows that :-

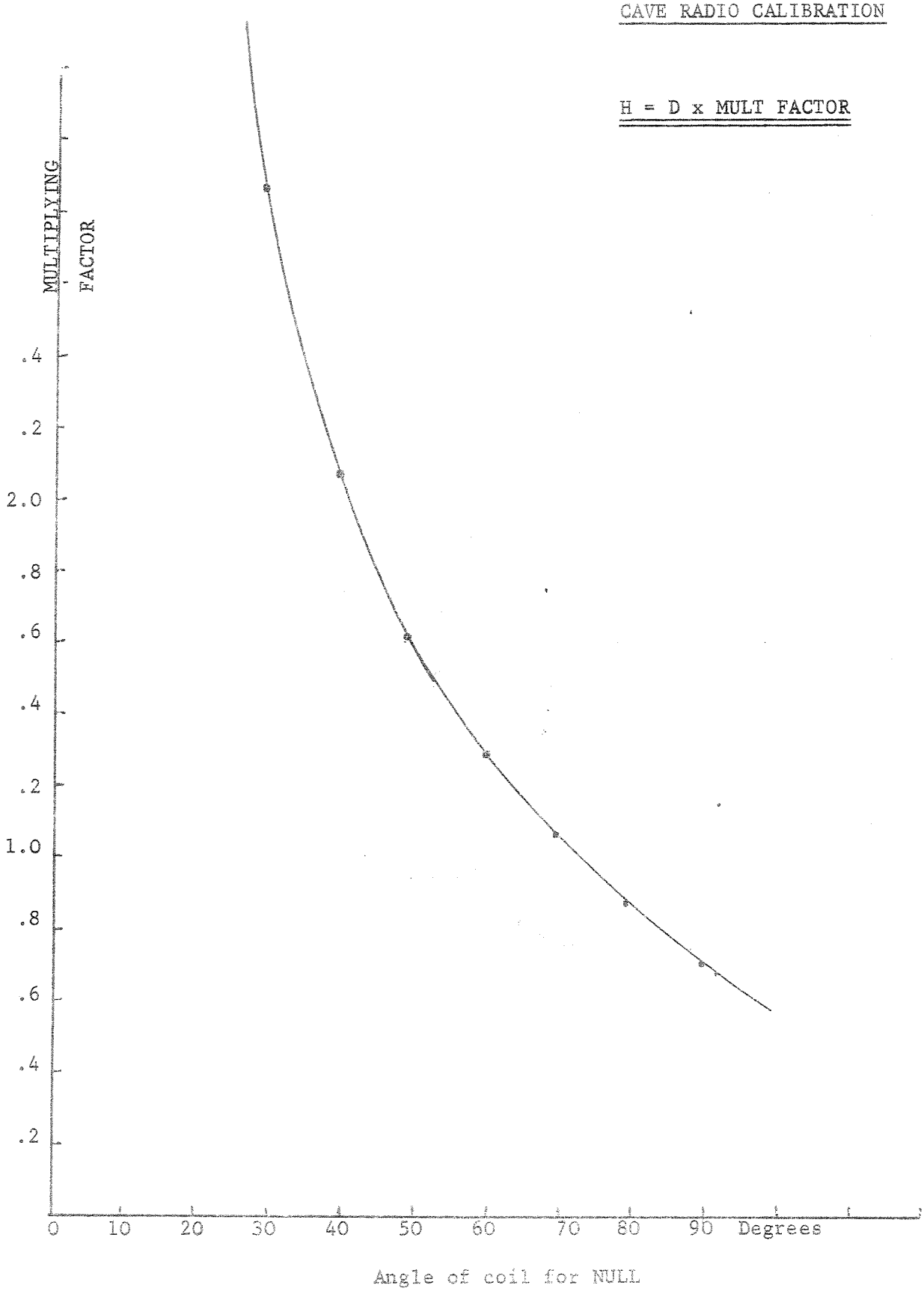
$$\frac{2M\cos\alpha\cos\alpha}{y^3} = \frac{M\sin\alpha\sin\alpha}{y^3} \qquad \text{i.e. } \tan = 2 = \frac{D}{H}$$

This special case can be extended generally if at any point the receiving coil is turned to receive the null it follows that the normal components of the flux to the coil must cancel. By ref to fig.3 (c) the normal components can be seen to depend on α and ϕ from which we can deduce that :-

$$H = D\ (3/4\ \cot\phi + 1/4\ \ 9\ \text{cosec}\ \phi - 1)$$

CAVE RADIO CALIBRATION

H = D x MULT FACTOR



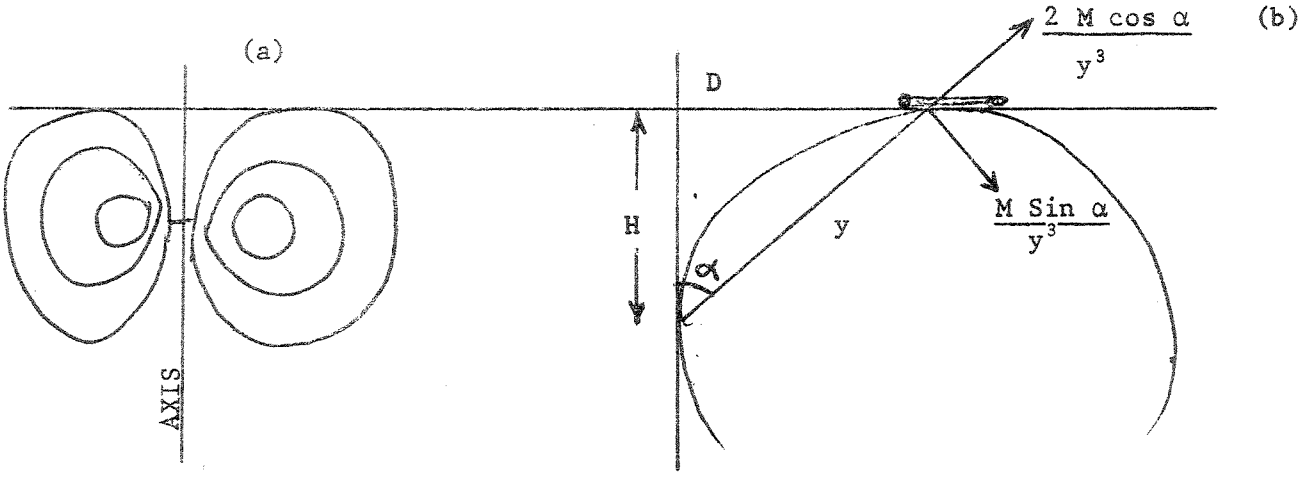
Angle of coil for NULL

Thus it can be seen that the transmitter depth can be found from the horizontal distance times a multiplying factor derived from the angle of the coil to get a null. This multiplying factor has been plotted and can be used in the field.

It can be seen that as the angle decreases the multiplying factor increases and D decreases. The possibilities for error therefore increase so that it is best to take angles over 30 degrees.

J.V. OSBORNE
August, 1969.

Ref:
W. Birchenough. CRG Pub. "Technical Aids to Caving", 1962.



FLUX PATHS SET UP BY COIL

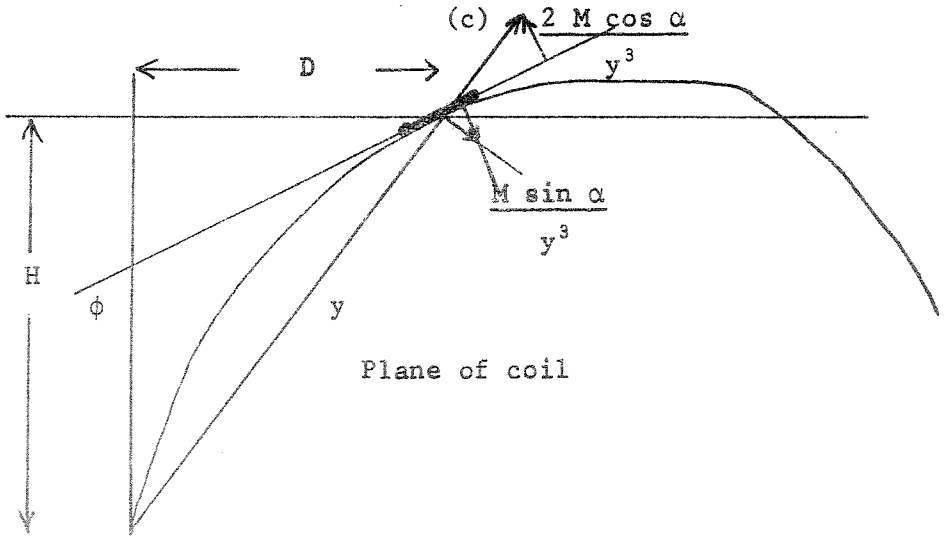


Fig. 4.

SCIENCE AND SPORT IN OGOF FFYNNON DDU

On July 12th last, an oft delayed memorial trip was held in Ffynnon Ddu. Born out of nostalgia and fed on adventure, the idea to repeat a complete round trip of the cave was fulfilled.

A round trip these days, involves the Ffynnon Ddu streamway through Dip sump, and a chance to see in one trip some of the most sporting caving in the country, in passages infrequently visited, whilst traversing Nant Newydd, Clay Series and so to Ogof Ffynnon Ddu III.

A small band of three set off, passed the sump and Piccadilly, and for variety entered Clay Series via the Marble Showers traverses and Great Oxbow Series. Although the presence of a top entrance proved a strong attraction, the plod onward to Smith's Armoury was successful and the return trip was, if you will excuse the pun, downhill all the way. Although unashamedly a sporting trip, water samples were taken along the route for analysis. Several of these were lost en route, but the remainder should excite comment, pose problems and demand research.

Some of the questions that spring to mind immediately are:-
What contribution does solution make to caves in South Wales?
If the stream in a cave is 'captured', what passages lie beyond the present limits of exploration?
Can conductivity tests help the cave explorer?

Incidentally the three sportsmen took just over ten hours to collect the samples!

RESULTS

The samples were analysed at a later date for specific conductivity and pH. The meteorological conditions were ideal for the exercise, since there had been very little rain over the previous two weeks, with the result that the water level was well below 'The Step' in Ogof Ffynnon Ddu 1. Polythene sample bottles were used and obvious precautions to avoid contamination, such as flushing the sample bottles twice at each site, were taken.

An Electronic Switchgear Ltd. Model MC-1 MkV Conductivity meter was used for all determinations, and was calibrated for calcium carbonate content by standards prepared from London Tap Water. The standards were analysed by titrating with 0.1M HCl, the neutralisation point at a pH of 4.5 being determined by an electronic pH meter. Completely saturated water made in the laboratory has a conductivity of around 2000 micro-mhos/cm. for comparison with the results below.

Location of Sample Site	Conductivity (micro-mhos/cm.)
Main Stream	
Smith's Armoury	135
Stream at start of OFD3	160
Stream at Maypole inlet above tributary	155
Upstream of 'The Confluence'	165
Dip Sump	210
Ffynnon Ddu	210
Tributary Streams	
Stream with moonmilk in Salubrious Passage	220
Cwm Dwr stream near 'The Confluence'	280
Pluto's Bath	390
A fortnight later with no apparent change in water level	
Ffynnon Ddu	240

DISCUSSION

Christopher N. & Bray L.G. 1964 (Newsletter 60) have shown that in the general area of Craig-y-Nos, there is a strong positive correlation between the calcium carbonate content of stream waters, and their conductivity. This is because the only soluble mineral present in any significant amounts in the neighbourhood is calcium carbonate, there being insignificant amounts of gypsum and no halite to provide any other metal ion concentrations which control conductivity.

With minor fluctuations, there appears to be a general increase in conductivity, and hence presumably in calcium carbonate content from sink to rising. The increase from sink to Smith's Armoury is of the order of 100 micro-mhos/cm. over a distance of at least ¼ mile. Over the three miles in the cave from Smith's Armoury to Ffynnon Ddu the increase is of the same order. Other factors which would affect the solution of limestone over the distance from the Byfre to the Armoury, apart from the unknown length of stream passage which must be in excess of a quarter of a mile, are the original acidity of of the water*, the degree of surface contact with the rock, the nature of the rock (dolomite is less soluble than calcite), and the turbulence of the stream. Therefore no hard and fast conclusions can be made about the length of stream passage remaining to be found. This is especially so, because of the values given by tributary streams which have high conductivity values. Both of the tributaries tested, and also Pluto's Bath have comparatively high values, but presumably short courses.

*Streams rising from the Old Red Sandstone have a high calcium carbonate content due to the marly nature of some of these sediments (Editor with George Bray).

Both tributaries are, or were, very small and consequently have a very large surface area in contact with the rock relative to their volumes compared with the Main Stream. Another point is that both of these tributaries probably arise on limestones and most of the courses of these streams is along narrow joints and bedding planes where calcium carbonate content may be built up rapidly.

A large stream like the Nant Byfre flowing through a well defined passage is not as likely to pick up a large amount of calcium carbonate as evidenced by the relatively small amount of calcium carbonate dissolved between Smith's Armoury and Ffynnon Ddu. A large part of this increase is probably due to the effect of tributaries in any case.

At a very rough estimate therefore of the stream passage beyond the Armoury, there is likely to be a lot less than three miles of stream passage and obviously more than a quarter of a mile. Something of the order of half to one mile seems reasonable. Since the stream has obviously invaded a pre-existing complex of cave passages, this estimate should have no bearing on the amount of further cave to be found.

Sport by JOHN OSBORNE

Science by KEITH BALL

September 1969.

SECOND ST. DAVID'S DAY RACE IN OCTOBER 1968

Odd
If not inherently absurd;
The spectacle of a corpulence of middle-aged men
Like Peter and Bill
and Derek;
Oh! and poor old Clive,
I suppose he still qualifies in spite of his
Palaeo-Faustian appearance-
Walking twenty miles to indulge the whim
of an Antiquated Ambulophiliac.

It started quietly with coffee,
And sausage rolls for the unwary.
Togetherness
Lasted until the bridge.
Some youngsters rush ahead
In excitement.
The Mature
Start slow but finish fast.

Idle thoughts come to the empty mind
Plodding alone up the hill from Heol Senni.
Wonder where the Ancient Mariner will pop up next
With his stop-watch
And tape-recorder.
When's the next bus
Or should I hitch-hike.

Who's behind now?
Some fat ones
Some thin ones
and a Bird.
She should have been sent in front
As a carrot.

Strange variety of people to share
Aslett's complaint
And its resolution.
Even stranger those who could not come.

On Penwyllt Hill the blackberries are juicy.
At the top
No flags?

Bill could have won easily
But
He didn't want the publicity.
Or Edward, but he
Forgot.
Colin came second, he paused
at the Gwyn and at the end,
Was Sozzled.

Dinner was nice but subdued.
Too tired
To be riotous.

Sent anonymously to Edward Aslett

DIG THESE DIGS

There are still sites in South Wales which offer potential for new caves the size of Ogof Ffynnon Ddu or Dan-yr-Ogof. Some of them, such as the Ffrydiau Twrch rising, do not offer encouragement but some discoveries can, and ought, to be made with a modest expenditure of effort.

This then is a short report on a few attractive sites which should be paid attention. They are 'pet' sites or digs which have attracted interest by virtue of their special features. There are of course others we all know, but for a start:-

GOWER

Starting in West Gower Sheet 152 1" to 1 mile

(a) Burry, O.S.45.90. A resurgence which may be worthwhile.

(b) Harding's Down. O.S.433.905. A large passage, 20 feet long so far, at the junction of the Old Red sandstone with the limestone. Of course most of this area is limestone except for Rhossili Downs, Harding's Farm itself, and Llanmadog Hill. The cliffs on the north of the coast would definitely repay a look, i.e. Bovehill and Stembridge. The same applies with the south part from the Worm's Head to Port Eynon point. It is in this area that C.Taylor is reported to have found a cave with a 50 feet waterfall.

Sheet 153 1" to 1 mile

(a) Llanrhidian risings which are just accessible and connected to O.S.505.913 by dye testing.

(b) Llyn b Bwch O.S.484916, 100 feet of unpleasant dug passage accessible at sinks at Slaughter House.

(c) O.S.515.910. Connects to Wellhead at 541897 (dye test). This site is part of the Llethrid-Tooth complex and passes a vast amount of water.

(d) A well at O.S.533.903 (rear of house). A dry well with fill, but an old report of a passage at the bottom and this is confirmed by divining.

(e) A dig at Cathole O.S.538.901 or further south to give access to Wellhead resurgence. The dig (previously tackled by the late Dick Bayaton) further south, involves clearing a passage that is dropping rapidly.

(f) Bishopston Valley from O.S.575.892 to Pwll-Du bay. There are some active sinks here and all the valley should be inspected for the best prospect.

(g) Courthouse Farm - Cannisland area O.S.563.902. Along the valley to Ilston, there are many digs; some in the streambed and some in the cliff face.

(h) Ilston at O.S.558.902. Large entrance blocked by earth etc.

(i) A recently 'developed' hole at O.S.583.886 (J. Harvey has accurate details).

CLUB AREA

Obviously immediate possibilities occur in the major systems, but there are others.

Ogof Ffynnon Ddu

When the survey is produced, exploration will be assisted, but if we extrapolate from our knowledge of OFD I and Cwm Dwr, we can draw some conclusions.

(1) There is a tendency for series of passages, with joint determined intersections at angles of 60°, to trend down dip to the stream.

(2) Series often form superimposed on other series, in which case the vertical separation is approximately 60 feet.

Using the above facts likely sites are therefore:-

(a) Above Piccadilly. These would be best approached by following the stream nearer the Smithy into the boulders and returning, back over the top or maypoling.

(b) There should be a route into the Smithy area at + 60' or + 120'. The best approach is via the upper Oxbow series to the area which drops into Marble Showers. A 10' maypole will cross the hole into a passage beyond. There are also 2 passages on this traverse from the Oxbow to the Marble Showers.

(c) Avens in upper Midnight passage should yield small upper passages.

(d) Odds and ends in Clay series. Most large passages are blocked by boulders as they approach the surface.

(e) There should be a series below the Crevasse, heading towards the stream.

(f) The Traverse. There is probably a passage feeding the trickle of water at the start of the traverse at + 60'.

(g) A passage above the Cascades in OFD III, seldom entered and leading to within 100 yards of the Armoury. It ends in a boulder choke but could lead to OFD IV.

(h) The Armoury itself is a challenge.

Dan-yr-Ogof

There have been several newsletter articles about the potential of this cave recently. Take a close look and the same 60 feet separation of series might apply.

Surface Digs

The rewards here are potentially greater than the above-mentioned sites.

(a) Hidden Valley Dig. This is in a large shakehole below a cap of grit. It cannot be far from the limestone and has a draught.

(b) Penderyn Dig. This is just west of Penderyn, near the triangulation point. It is a rift in a small cliff face just above the 'speleogenic beds' of limestone.

(c) Pal y Cwrt (near Llygad Llwchwr). Both caves still offer possibilities. An obstruction in Llygad Llwchwr in a passage above the terminal sump needs blasting.

These should do for a start and if you want more, how about divining?.

The armchair cavers.

DIVING IN DAN-YR-OGOF

Diving has not met with the same success in Dan-yr-Ogof as in Ogof Ffynnon Ddu. Despite this, interest is still strong amongst a few of the club divers because they believe, like many others, that the major part of the course of the underground river has yet to be discovered.

The original dives (before the passing of the "Long Crawl") by Charles George and others, discovered several sumps connected by air bells that in keeping with previous tradition were named Lakes. These are a more saturated version of the Lakes 1-4. The discovery of Dan-yr-Ogof 2 forestalled the necessity of further diving operations, and the connection of the farthest point reached with the river at the Washing Machine, a horizontal distance of some 900 feet seems certain. I mention the distance because it is quite likely that the major part of this is submerged, and would have been an extremely difficult dive.

At the Washing Machine the stream emerges from a body-sized hole with considerable force. The Lower Series in Dan yr Ogof 2 obviously floods extensively and is only just above the phreatic zone of the cave. The numerous pools are of some interest. A number are merely static, preserved in chance hollows but others appear to be connected with the river flowing somewhere beneath. Pools separated by a few feet show entirely different colour aspects after dye tests; some appearing quite green and others clear. One can swim from one of the "connected" pools in low water conditions nearly to the Mazeways entrance pool. This swim travels under the normal route, which in fact consists of several tube levels connected by short drops.

The Mazeways entrance pool is of the same brown murky colour as the Main River and is the last time this water is seen in the cave. There is usually a slow whirlpool on the surface and the water appears to flow off in the expected northeasterly direction. Ducking under a low arch, this pool can be passed and after about 30 feet shallows out on a sandbank. The Mazeways continue over the sandbank, southwest, as a series of interconnecting, scalloped oval tubes. These are usually 7-8 feet high with numerous sandbanks and shallow, peaty and static pools. The sandbanks in these passages show ripples consistently indicating flow out towards the entrance. The series fills to the roof from the evidence of foam on the roof.

Terry Moon first dived in the Terminal pools and discovered, by following the southern wall of the submerged passage, a connection with another pool reached previously by a dry passage. After contemplating the result, another dive with Colin Fairbairn was executed on 1st June 1968. This time they followed the northern wall for 100 feet and found a larger passage leading northwards. They followed this for about 250 feet but a leaking valve forced a return to base. Apart from the discovery, they also found that the peaty red colouration of the loop did not continue in this new passage which was crystal clear.

Despite the differences in colour between the loop and the new passage and most of all with the entrance pool, it was considered that the inviting black space left by the previous retreat needed to be investigated. A further dive in August 1968 by Terry and Colin, joined by Dick Arculus, found that the passage divided. The westerly branch reached an air surface but was too small to be pushed further. The main passage continued past rock sculpture reminiscent of the Washing Machine area and Dali's Delight, for a distance of some 800 feet from base. It had maintained a fairly constant 30-40 feet depth but appeared to be getting smaller. Air supplies required a return. The length and depth of the sump was daunting and activity calmed.

At Easter this year, a dive by Colin and Bob Saunders was made in the Rising at the end of Dan yr Ogof 2. An aven air space was discovered after 80 feet and the passage continued underwater. Poor visibility and signal confusion caused a retreat. The stirred-up mud prevented another dive a few hours later, from reaching the air space. The intention of this dive was to discover if there was any continuation of the Great North Road southwards along the fault which governs the Passage direction until Windy Way and the overpass of the sump. On the same day, an investigation of the Mazeways entrance pool was carried out by Dick. Observations had shown that the inlet to the pool appeared to be on the south side a few feet after the low arch. During moderately high flow, the water wells up here on the surface and a hole can be felt under the surface with the feet. The dive was in typical bad visibility, but confirmation of an underwater inlet was made. It is about 3 feet by 3 feet at a depth of ten feet and continues deeper issuing bits of sand and mud past the diver. Tim Reynolds from the WCC dived in the Rising in May and confirmed the previous dive's results.

The opinion about Mazeways had hardened to considering that the final pools are a flood rising, and must be connected somehow with the Main River. The nature of the entrance pool is discouraging but might result in a passage consisting of a series of air bells and sumps somewhat like the pools downstream of the Mazeways entrance pool. Dick returned, however, to reinvestigate the terminal pools in July this year. The Northern wall was again followed to see if there was another inlet apart from the big passage. A dive of 180 feet discovered nothing new. The terminal pools in fact do appear from George Bray's water tests to be consistent with the hypothesis that they are the Giedd. Of course, the whole of Mazeways and the sumps are beneath Hangar Passage and its extensions, which appear to the abandoned course of the system. These end in chokes which are very shattered and difficult to dig.

At the moment then, Dan yr Ogof presents a challenge to every member of the club. Digging, climbing or diving all offer opportunities for extending the system.

Finally the divers are indebted to the assistance in portering they have received from many members of the club (Gary Jones even appeased the spirits with a sacrifice of blood on the last occasion) and also to the Eldon Pothole Club who have received nasty shocks at the amount of gear needed for "normal" tourist trips, but have given great help. The only fear is that interest will wane due to the disappointing results and the difficulties of carrying the gear in and out of the cave.

R.J. ARCULUS
August 1969.

OGOF FFYNNON DDU SURVEYED

By 1st of November, it is hoped to have the survey of Ogof Ffynnon Ddu ready for sale. Three years of concentrated work have been devoted to producing the survey, and it is to be hoped that the finished product will please the many people who have clamoured for a survey, however rough and ready.

The survey that we are publishing has been produced in a remarkably short period of time and it may receive criticism for being rushed. One point has to be remembered when dealing with such a vast system as Ogof Ffynnon Ddu, is that the total distance involved is close on fifteen miles (the final figure is not yet decided) so one could comfortably spend the next ten years accurately measuring every nook and cranny and that has not been our intention, so we have adopted a very speedy method of surveying. This method's success in locating the far reaches of the system has justified its use. The equipment involved gives a survey to CRG grade 4, but the use of the radio location device enables the final drawing to be corrected absolutely at any number of intermediate points. This is, perhaps, a new concept in cave surveying, and one which the purist might not accept very readily; however, if it is tolerated, it makes the task very much easier. As well as being able to use the radio device, the great number of intersecting passages in the system affords a good opportunity of keeping a constant check on the survey by loop closures, without the need for time-consuming back bearings.

The survey will appear in booklet form, the contents of which will cover the following fields:

1) The discovery and exploration of Ogof Ffynnon Ddu
2) A description of the cave and its surroundings
3) Geological and geomorphological aspects of the cave and the area around Penwyllt.
4) Some suggestions as to how the cave developed.

The intention has been to gather as many facts together about the cave and the area as is at present known. The drawing will be produced at a scale of approximately 1" to 100 feet which will mean two sheets each 24" x 48".

The whole venture has been a club one, and it is to be hoped that the final stage, that of selling the survey, will be as successful as the preparation stage. We are grateful to all those who have helped us in the field work, and especially to those whose generosity has helped produce the final publication. As yet no final price has been arrived at but it will probably be about 17/6d. and advance orders may be placed (without money) through either the Editor, Paddy O'Reilly or Colin Fairbairn.

P.M.O'R. August 1969

REVIEWS

Diving Review 1966-7 CDG 12/6 from the Editor
P.W. Kaye
9 Broomfield Crescent
LEEDS 6.

This review was published last year but has not been reviewed before in the Newsletter. The delay in publication was due to the difficulties in tracing accurate dive reports for Yorkshire. Not surprisingly, the reports are not always accurate, but the attempt and the result of recording all diving explorations is praiseworthy. Anyone contemplating regions beyond their normal stamping ground would find this well worth the cost. A copy has been placed in the club records.

Manual of Caving Techniques Cave Research Group
Edited by Cecil Cullingford published by Routledge and Kegan Paul
London, 4 guineas.

A comprehensive survey of the latest techniques and accumulated experience gathered by British cavers in the years that have passed since the last revision of 'British Caving'. The various topics are handled by different authors, but changes in style do not detract from the book's worth as a reference manual. Indeed the value of the different authors is apparent in the superiority of the coverage of caving techniques in comparison with books published on the same lines previously by lone authors.

R.J.A.

CLUB NEWS

1. Congratulations to Dave and Pam Dilly on the birth of their daughter, Dale Kim, on May 5th 1969

2. Congratulations on their marriage to Roger Flaherty and Liz Chandler; and to Jem and Terrie Rowlands on theirs.

3. We welcome as new members of the club, the following:
Mrs. Jean L. Day 23, Glencairn Avenue, Tuffley, Glos.
Martyn J. Farr, Efail Isaf, Cwmdu, Crickhowell, Brecs.
Gary K. Jones, 49 Crymlyn Road, Skewen, Neath, Glam.
Clive Perrett, 8, Kelso Close, Worthing, Sussex.
Mrs. Terrie Rowland, c/o 10 Bevan Way, Waunarlwydd, Swansea
John C. Stevens, 26, Attimore Road, Welwyn Garden City, Herts.
Miss Alison Stone, 102 Pennard Road, Pennard, Swansea.

4. Carl Ryan has been co-opted as assistant secretary to the committee.

5. Robert Radcliffe has been co-opted onto the committee.

6. We welcome Arthur Hill as an Honorary Life Member of the Club.

7. The great majority of the hut fees outstanding at March 1st 1969 have now been paid.

8. The system of collecting the hut fees by the duty officer is working very well. Thanks are due to all members and particularly to those who take on the job of duty officer. Are there any more volunteers?

9. The list of working party dates is given again. Please try to attend at least one, even if only for one day.

October 3rd-5th
October 31st-2nd November
December 5th-7th

10. A photograph of the columns in OFD 11, taken by Peter Harvey and suitably framed, was given to Brigadier Aubrey Glennie to mark the occasion of his eightieth birthday. Thanks are due to Peter for a very fine photograph.

11. The club has two representatives on the Agen Allwedd Cave Management Committee. They are Laurie Galpin and Noel Christopher.

12. Robert Hall and Robert Radcliffe have been accepted as leaders for OFD 1

13. Our two representatives at the Cambrian Caving Council are Laurie Galpin and Colin Fairbairn.

14. The Southern General Meeting of the Cave Research Group will be held in South Wales on June 27th, 1970. Our club is to be the host so please try and give your support by keeping the date free and attending. We will be allowing more than 15 guests on this occasion.

15. Derek Webley has been awarded the Clark Memorial Prize for Prehistory by the Cambrian Archaeological Society. This is awarded every 7 years for contributions to Welsh archaeology and Derek is the first amateur to have won it.

16. Dates of forthcoming meetings:

Cave Research Group AGM Saturday, November 15th 1969 in London

Northern Cavern and Mine Research Society Conference - Skipton
Saturday, 4th October 1969.

17. The laboratory is now housed in the back room upstairs of No.3. A lot of equipment stored there is private property loaned to the club. Members are welcome to use it but any breakages should be replaced. As it is on loan, the room is locked but keys are available from Bill Little or Frank Baguley to any member wanting to do scientific work.

18. Members of the Club are reminded that we do have a Club library. Articles are available on loan from the Records Officer, Clare Harvey, and members are reminded that the library is housed at Ty Mawr, Penwyllt. Articles may be borrowed by post or on personal application to Clare.

19. The Annual General Meeting for 1970 will be held either on Saturday evening or Sunday of Easter weekend, to begin at 5.00 p.m. The date will be circulated when a suitable room has been booked.

20. The committee regretfully accepted the resignation of John Osborne as a member of the Committee. We wish John well in his new life in Kenya.

21. Dave Judson, Mick and Judy Day and Dave Hume returned in August from a successful expedition to Umbria, Italy. They discovered a new inlet in a pothole over 2000 feet deep.

22. Bruce Macleod has spent the summer in Newfoundland on a British Schools Exploration Society scholarship.

23. We had a distinguished American speleologist, William Halliday, visit us at the beginning of September. Paddy showed him round the Gower and Swansea Valley, and that evening, Bill gave a slide show to members of the Club, on American caves; particularly his own speciality of lava tubes.

24. Rumours of a new cave on the Hepste have reached us but there are no details at the moment.